



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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December 5, 2003

Ms. Paula Doughty  
Kennecott Utah Copper  
8315 West 3595 South  
P. O. Box 6001  
Magna, Utah 84044

Re: Evaporation Pond and Bastian Sinks Soil Removal Project, Kennecott Utah Copper, Bingham Canyon Pit, M/035/002, Salt Lake County, Utah

Dear Ms. Doughty:

On September 23, 2003, the Division granted conditional approval of your proposal to remove soil materials from the South Jordan Evaporation Ponds and the Bastian Sink and place them in the Copper Notch Repository. Certain conditions attached to our letter anticipated clarifications might be required after the Division reviewed the proposal more thoroughly.

The following comments and clarifications are now requested:

1. The second approval condition requires that, at some time after the soils are in place at the repository, Kennecott initiate a testing program to characterize this material to determine whether, and under what circumstances, the soils might be used for reclamation. The characterization in the plan is adequate for soils in the evaporation ponds. These soils have somewhat elevated electrical conductivity levels that may restrict the growth of some plant species, but the levels are not extreme. If these soils are used for revegetation, the species used will need to be adapted to these conditions.

Soil materials from the Bastian Sink have elevated lead and arsenic levels, but we are unsure what effects these may have on plant growth. The tests done on the samples from the Bastian Sink appear to have been for total metals rather than water soluble or leachable, so we do not know how much would be available for plant uptake and, potentially, animal ingestion. Are additional test results available? Please provide information about the anticipated effects of these lead and arsenic levels on plants and animals.

2. Some of the Bastian Sink soils would be used as a keyway for the Copper Notch dike, but the plan also says Bastian Sink soils will be placed on top of the evaporation pond sediment at the Copper Notch site. The Bastian Sink soils will serve as part of the

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reclamation surface along with clean soils salvaged from the repository area. Because the Bastian Sink soils have higher lead and arsenic levels than the soils from the evaporation ponds, is it wise to place them *over* the soils from the evaporation ponds? Are the lead and arsenic levels likely to lead to plant or animal toxicities, if the Bastian Sink soils are at or near the surface?

3. The cover letter says the landfill will be designed so that the soils can be retrieved if, in the process of reclamation of the waste rock disposal areas, they can be utilized as part of the reclamation activities. Although the project has already begun, we strongly suggest that you look at the possibility of finding an area where evaporation pond soils might be used *now*. In this way, you would not have to double-handle the soils. We suggest finding an area where revegetation is not now considered possible because of low pH or high EC values, and applying the soils there. As this project progresses and you start moving Bastian Sink soils, it may be possible to reclaim more areas immediately rather than depositing the soils at Copper Notch then moving them again to another site. This will depend on whether these soils are suitable as a growth medium (see item 1 above).

In the cover letter, you request that the process for releasing the Daybreak site from the Kennecott DOGM permit be formally initiated. The Division considers the work you are currently doing to be reclamation, in other words, preparing the site for the postmining land use. Once you have finished removing the contaminated soils, the sites should be ready for release, but according to your schedule, closeout will not be until 2007. In the meantime, we suggest that you prepare new maps showing those facilities that will continue to be bonded and that will still be in the permit area, such as the infrastructure associated with pumping facilities. When the soil removal process is complete and the Division has inspected the area, we would then be able to release those areas that would no longer be used as part of the mining operation.

Thank you for your cooperation. If you have any questions about this letter, please call me at 538-5286, Paul Baker at 538-5261, Doug Jensen at 538-5382, or Tom Munson at 538-5321.

Sincerely,



D. Wayne Hedberg  
Minerals Permit Supervisor  
Division of Oil, Gas and Mining

DWHEPBB:jb  
cc: John Callendar, Kennecott Land  
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